



Seismic Readiness of Oregon's Highways

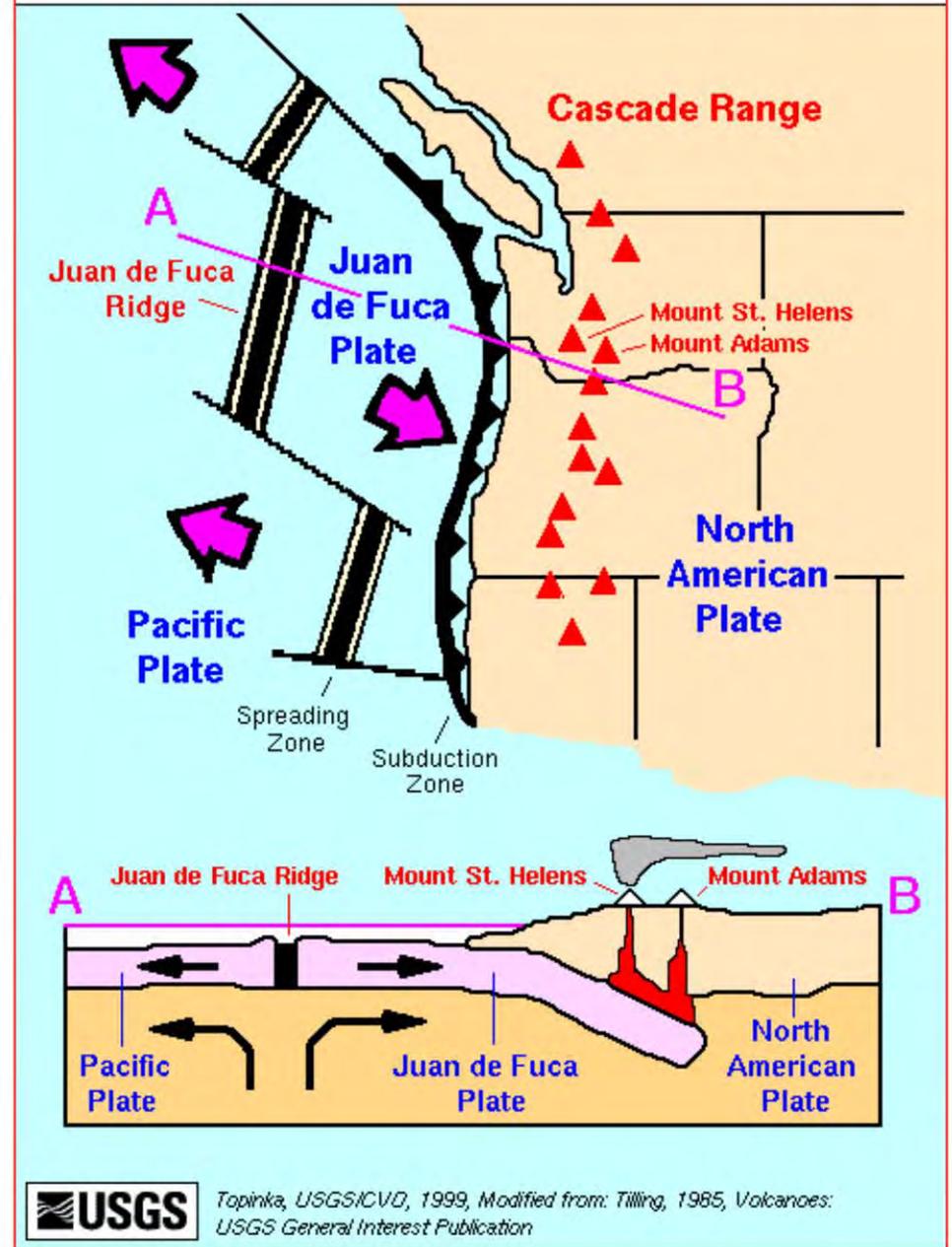
Tri State Commission Meeting

June 17, 2016



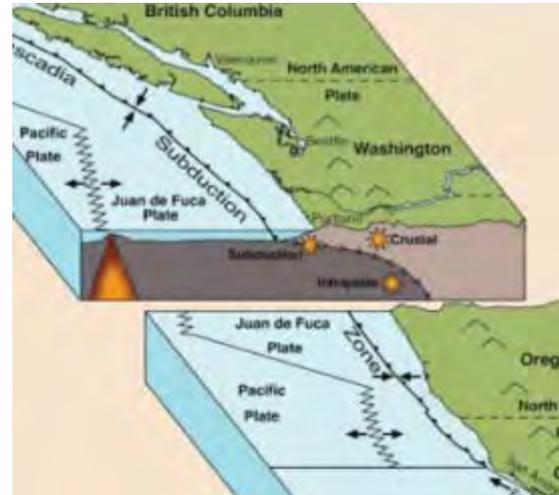
The Cascadia Subduction Zone

Plate Tectonics – Cascade Range



The Oregon Resilience Plan

Required by the legislature, supported by Governor

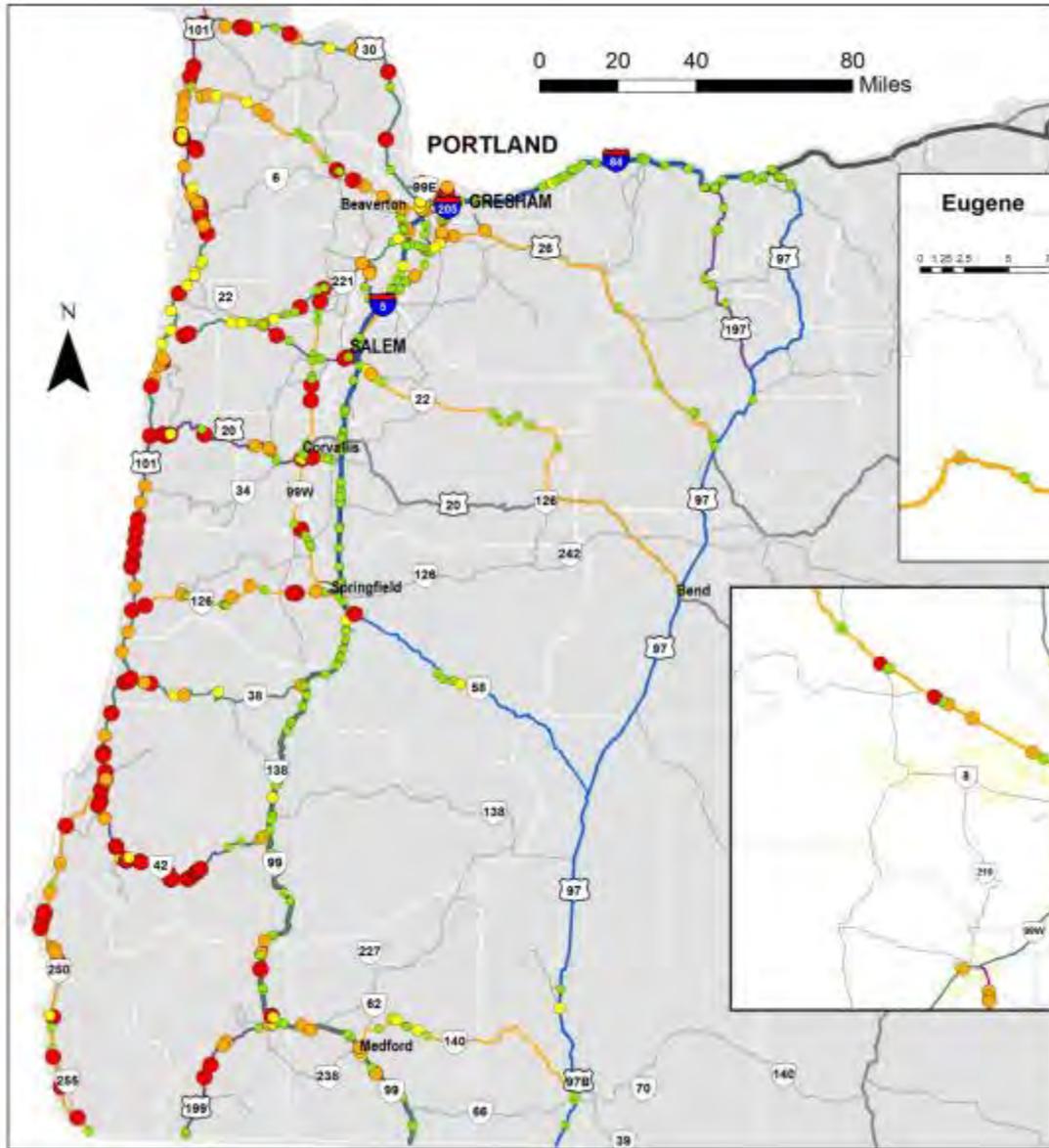


Transportation is critical

Comprehensive plan, developing a strategic approach



Seismic Plus Program Bridges by Expected Damage State



Bridge Damage State

- DS5 - Collapse
- DS4 - Extensive
- DS3 - Moderate
- DS2 - Minor

Program Phases

- Phase 1
- Phase 2
- Phase 3
- Phase 4

Phase 5: Replacements Only

- Interstate Route
- U. S. Route
- Oregon Route
- County
- City Limits



August 2014

This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



Collapse

I-5 Interstate Bridge



Collapse

Astoria-Megler Bridge



Collapse

US 30 Longview-Rainier Bridge





Slight to Moderate

I-205 Glenn Jackson Bridge



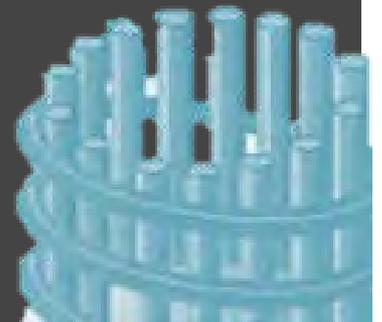
The solution

RETROFIT

For **life safety** to prevent collapse

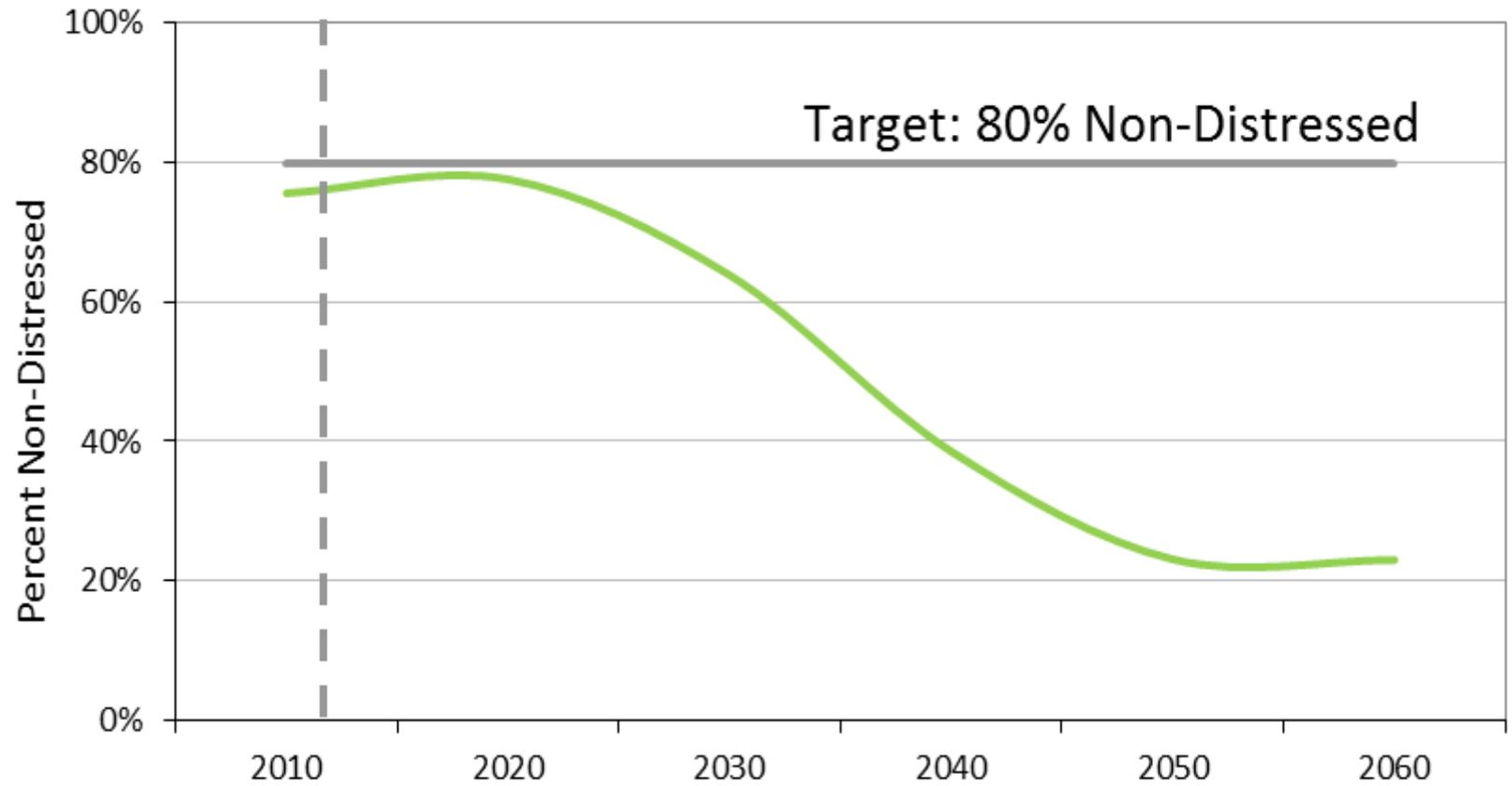


For **serviceability** to keep the bridge functional



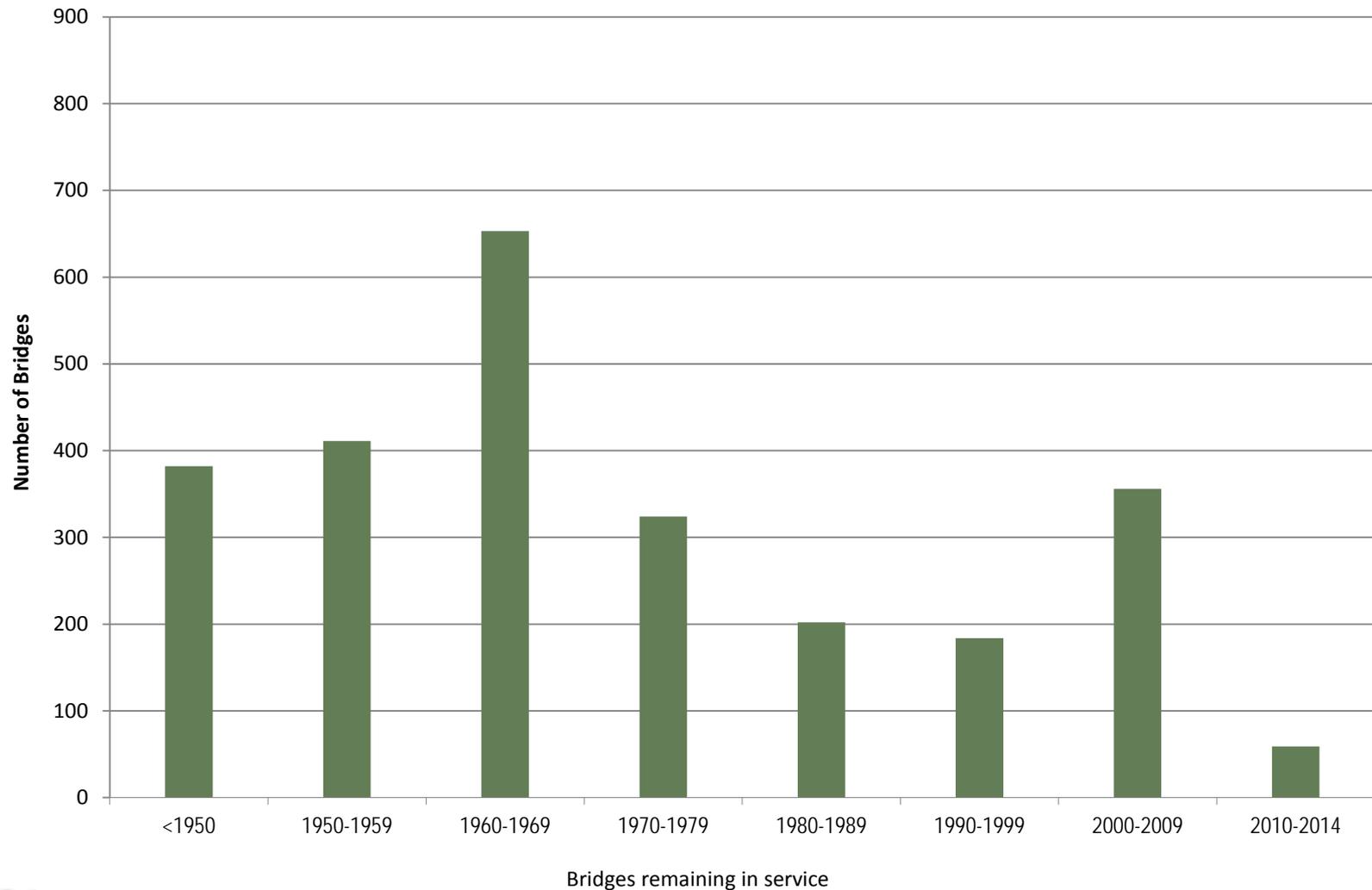


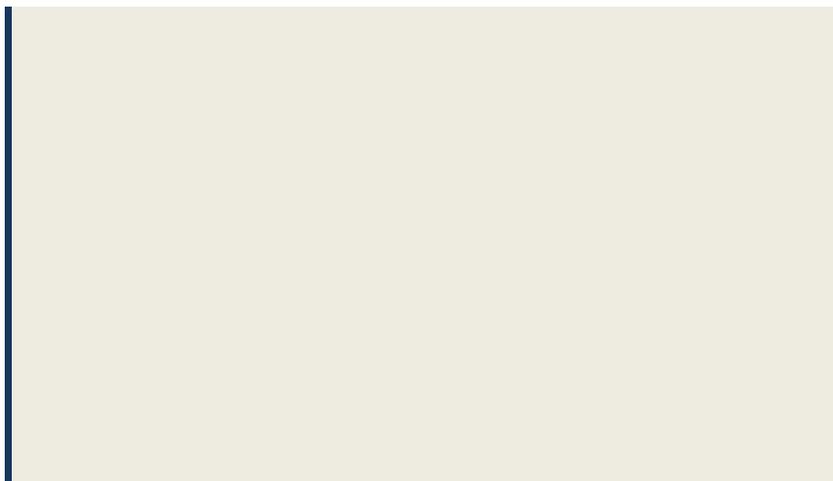
Bridge Conditions Decline





Most bridges beyond design life



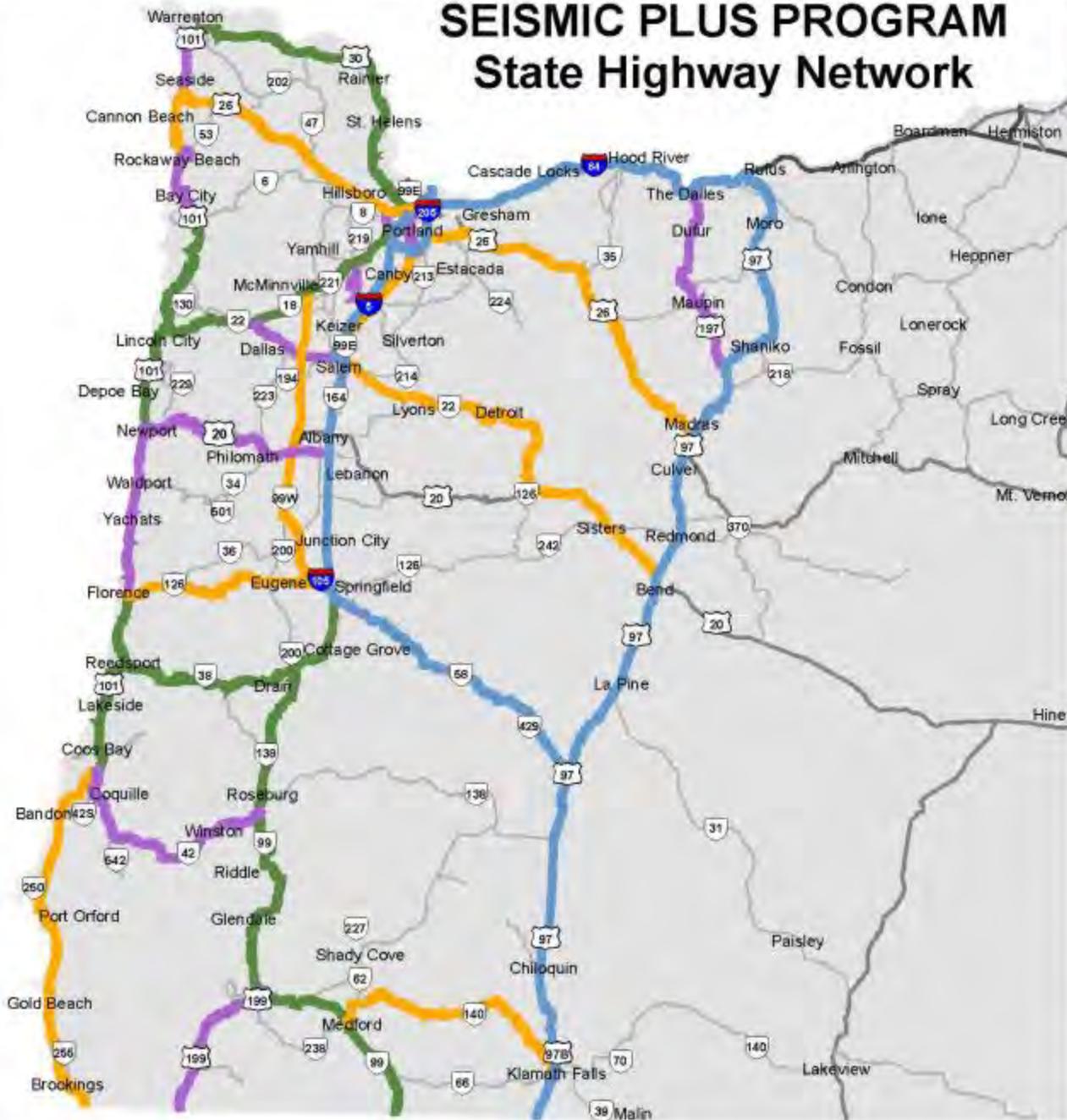


Route selection

Survivability	<ul style="list-style-type: none">• Emergency responders• Critical care facilities
Life Support	<ul style="list-style-type: none">• Critical care facilities• Life support resources• Evacuation routes
Economic Recovery	<ul style="list-style-type: none">• Critical freight corridors• Mobility into and out of the region• Routes between large metro areas



SEISMIC PLUS PROGRAM State Highway Network



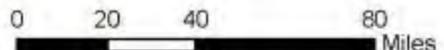
LEGEND

- Program Phase 1
- Program Phase 2
- Program Phase 3
- Program Phase 4

Phase 5 (replacements) not shown for clarity

- Interstate
- U.S. Routes
- Oregon Routes
- County
- City Limits

1 in = 39 miles



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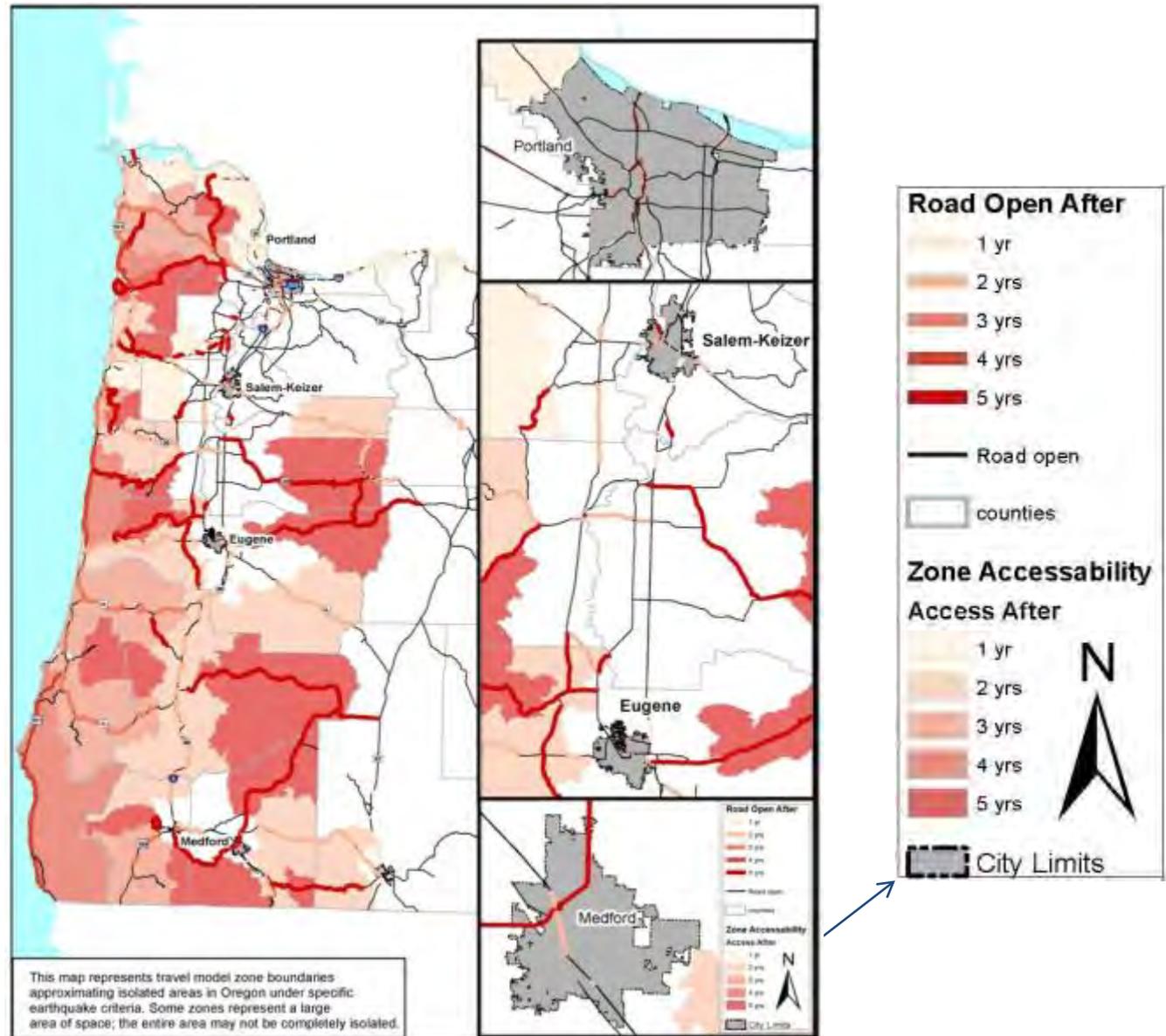
Total Seismic PLUS Program Cost

Program Phases	Total Bridge Cost	Landslides/Rockfalls Cost	Total Seismic PLUS Program Costs
1	\$738 Million	\$197 Million	\$935 Million
2	\$632 Million	\$272 Million	\$904 Million
3	\$612 Million	\$483 Million	\$1,095 Million
4	\$640 Million	\$126 Million	\$766 Million
5	\$1,432 Million	\$0	\$1,432 Million
Total	\$4.1 Billion	\$1.0 Billion	\$5.1 Billion



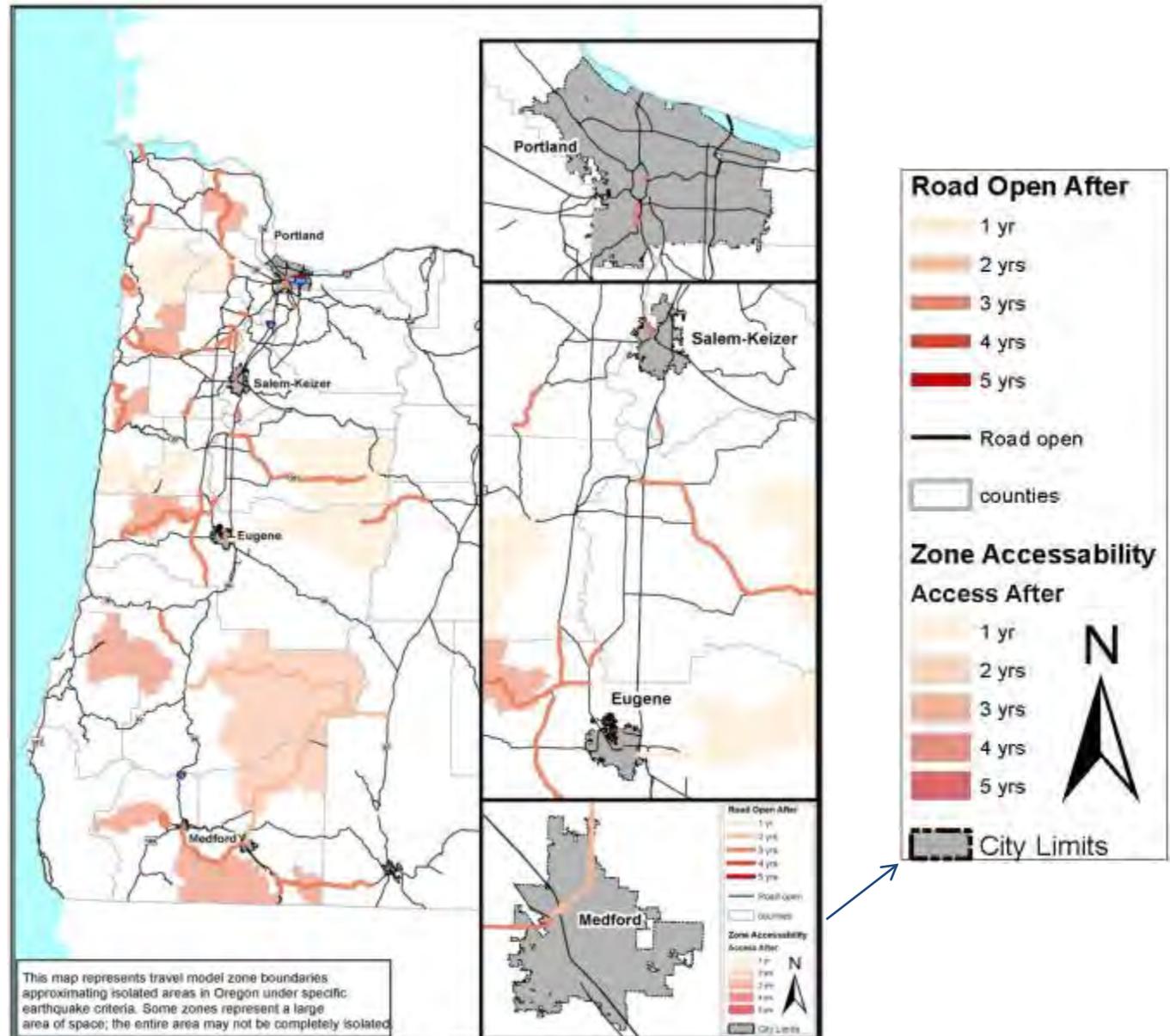
Major Seismic Event: Isolated Areas

Total economic loss: **\$350 B**



Isolated Zones: Full Seismic Program

Reduce economic loss by:
\$84 B



We need to start **NOW**

Transportation is key to the overall response

Seismic Retrofit by State

5147 Bridges
\$13 Billion



416 Bridges
\$177 Million



143 Bridges
\$44 Million



Next Steps ...

Route Continuity

- I-5/I-205
- US 97

Design Standards

- Life Safety
- Serviceability

